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ever been gathered in this country so that it is impossible to introduce comparisons, but from the figures which are available in this country it is apparent that conditions among our public school children would well repay state-wide study. This report is filled with interesting studies of local conditions and gives a very good idea of the extent of the effort which is being made in England to insure to the country a healthy working population.

WM. B. BAILEY.

Yale University.

REPORT OF COMMITTEE ON STANDARD TABLES.

The undersigned members of a committee appointed at the last annual meeting of this Association to coöperate with a committee of the American Public Health Association to consider forms of tables employed in registration reports, federal, state, and municipal, and to draft a set of standard tables, have the honor to submit the following report of progress.

The form of statistical tables is dependent primarily upon the information which the tables are to convey. That information always consists in certain statistical totals combined in various ways. In American registration reports, as a class, the space given to tables regarding deaths greatly exceeds that given to all other tables. For this reason the present report is confined to mortality tables.

American registration of deaths is now based in nearly all cases upon a standard certificate. Hence the information open to tabulation is practically identical. Part of the information conveyed on a certificate is merely for identification or corroboration and has no statistical value. This is true regarding the decedent's name and that of the father and mother, the date of birth as distinguished from the age, the length of residence, the place and date of burial, and the name and address of the undertaker. After excluding these items, there remain for use in statistical tabulation the following:

- (1) Place of death,
- (2) Time of death;

as physical characteristics of the decedent:

- (3) Sex.
- (4) Age,
- (5) Race or color,
- (6) Cause of death;

as social or economic characteristics of the decedent:

- (7) Birthplace,
- (8) Birthplace of father,
- (9) Birthplace of mother,
- (10) Marital condition,
- (11) Occupation.

The deaths are thus susceptible of classification under each of these heads and each possible combination of them and the living population as reported by a census, or as estimated for other than census years, may be similarly classified. The proper classification of deaths is the primary object of all mortality tables in registration reports, the presentation of ratios between the annual deaths in a certain group and the enumerated or estimated living population in that group is the secondary object.

Tabulations with reference to a single characteristic seldom have much scientific or practical value. Thus, to know the number of females who died in 1910 or the number of persons who died of tuberculosis in that year is of little importance. But when the persons dying of tuberculosis are classified by sex, age, and occupation, and the living population is classified in the same way and rates computed, the results become significant. There is little use, then, in tabulating separately for each of the eleven characteristics previously mentioned. The tables should show combinations of these eleven in various ways. These combinations may be dual like sex and nativity; triple like sex, age, and occupation; quadruple like sex, age, occupation, cause of death, etc.

The extent of the tabulation of death statistics by registration states and cities and the manner of presenting the results of this tabulation are problems concerning primarily the registration offices. We may point out, however, that the meager and badly planned tables in many state and city reports are depriving the public of the sound and accurate knowledge of present conditions which is needed for the proper development of the public health campaign.

Your committee has had reason to believe that a series of standard tables which might be introduced in future reports of state and city offices as a supplement to or a substitute for those heretofore published would be welcomed in some quarters. Such tables also are demanded by the vote of the American Statistical Association appointing the committee.

In preparing these tables it is possible either to start with the present procedure of our states and cities and attempt to systematize it, or to disregard that experience and start afresh. Your committee believes that the former is the proper method and has therefore inquired, What combinations of statistical data are now presented? To secure an answer to this question the latest available registration reports of every registration state and of ten registration cities, selected on the basis of size and location, have been examined. New York State and South Dakota were disregarded because of the almost complete absence of classification of deaths in the reports of those states. The District of Columbia was treated as a state rather than as a city. This gives a total of sixteen registration states. Of these sixteen the number which tabulate the several items without combination is as follows:

Item.	Number of registration states in which it is tab- lated.
Place of death	16
Cause of death	14
Sex	7
Age	7
Time of death (month)	6
Birthplace (native or foreign born)	4
Race or color	2
Nativity of parents	1
Marital condition	1
Occupation	1

The number of possible combinations of two items in a series of eleven is determined by a simple mathematical formula to be fifty-five. Of these the following are found most commonly in the sixteen registration states:

Combination.	Number of registration states in which it is tabulated.
Cause and place	13
Sex and cause	10
Sex and place	10
Age and cause	10
Time and cause	9
Sex and age	8
Place and nativity	7
Age and place	7
Place and color	5

Of the fifty-five possible combinations of two items these nine are found in at least five of the sixteen states, eleven are found in from one to four states and thirty-five are not found in any state. As examples of dual classifications of deaths not now made in any registration state, the following may be named,—a classification by sex and occupation, by sex and marital condition, by age and nativity, by occupation and race.

An examination of the tables published in the reports of the ten selected

cities does not show any significant difference between the state and city forms.

Your committee recommends, then, that all states and cites not now giving this information be urged so to modify their tables as to include in them the eight dual classifications already furnished by at least seven of the registration states, namely:

Sex and age,
Place and sex,
Place and age,
Place and nativity,
Place and cause,
Cause and sex,
Cause and age,
Cause and time,

and that all states and cities having more that ten per cent. of negroes, Chinese or Japanese in their population be urged to tabulate also by place and color.

In a series of eleven items the number of combinations between three items which is mathematically possible is one hundred and sixty-five. or three times the possible number of two combinations. The possible combinations of four items is three hundred and thirty. But the labor and cost of tabulating in this way are far greater than those required for two. It is not surprising, therefore, to find that, while of the fifty-five possible combinations of two items, 20, or 36 per cent., are found in at least one state, of the one hundred and sixty-five possible combinations of three items only 25, or 15 per cent., are found in at least one state, and of the three hundred and thirty possible combinations of four items only 10, or 3 per cent., are found in even one state and only one is found in two states. Having in mind this omission of complicated tabulations by American states and cities at the present time and also the difficulty and cost of introducing them, your committee does not recommend any material extension of the work of municipal and state registration offices into those now unoccupied fields. It suggests, indeed, that these fields are just the ones in which the Federal government, acting through the Bureau of the Census, may best aid city and state health work by preparing such complicated and expensive tables for the registration area and its leading divisions. But while it is convinced of the wisdom of this general principle your committee does urge the inclusion of one table (Table 1) giving the triple combination by sex, age and cause of death as far more valuable and no more difficult to prepare than the three dual combinations by sex and age, sex and cause, and age, and cause now found in at least one third of the registration states.

To make its recommendations more specific and thus, perhaps, more helpful it submits the following drafts of tables.*

^{*} These drafts of tables will shortly be published by the Census Bureau. They are omitted here for lack of available space.

The preceding five tables include all the combinations of two items now presented in any five of the registration states and thus may be regarded as a sort of codification of prevailing practice in American states and cities. They are to be regarded merely as a minimum that should be included in every state and city registration report, and not as precluding the retention or formation of other tables. In fact, a series of desirable supplemental tables will be considered by this Committee for presentation later to the Association and the coöperating agencies (American Public Health Association and Bureau of the Census), but the matter of greatest present importance is to make a beginning, with a few simple yet fundamental tables, the general adoption and practical use of which in state and city reports will pave the way for further progress. If too elaborate a set of tables be recommended at the outset, it is likely that they will not generally be adopted.

As an aid to the execution of this plan, it is suggested that, if the coöperating Committee of the American Public Health Association approve, these standard tables be recommended for adoption as "Rules of Statistical Practice" by the organized registration officials of the country. This will, of course, require action at the next meeting of that Association which will be held at Havana next year, and in the meantime the forms of tables can be scrutinized thoroughly and perhaps some additional tables be recommended.

WALTER F. WILLCOX. THOMAS S. ADAMS. FREDERICK S. CRUM. C.-E. A. WINSLOW. ALLYN A. YOUNG.

Business Barometers Used in the Accumulation of Money. By Roger W. Babson. Wellesley, Mass., 1911. 4th ed. Pp. 380.

The modern prophet, whether it be weather, population, or the stock-market that he predicts, sits on a pile of figures: the tripod is obsolete. Statisticians do not announce "laws," and then fit the facts to them; but rather try to deduce principles from the figures. A prediction of the course of the stock or bond market, or of any of its subsidiary phenomena, such as money-rates, possesses much more interest to the general public than a prediction of the growth of population, for the former seems to offer a chance to make money. Mr. Babson's book, which is semi-popular in character, contains, nevertheless, some account of the statistical methods by which, he says, the "major movements" of security prices and money-rates can be foretold, and on these methods some comments suggest themselves.

Current figures on some twenty-five subjects are first collected and tabulated: these figures include statistics of building and real estate, bank